SYSTEM AND METHOD FOR ONE-TIME PROGRAMMED MEMORY THROUGH DIRECT-TUNNELING OXIDE BREAKDOWN

Abstract

A one-time programming memory element, capable of being manufactured in a 0.13μm or below CMOS technology, having a capacitor, or transistor configured as a capacitor, with an oxide layer capable of passing direct gate tunneling current. Also included is a write circuit, having first and second switches coupled to the capacitor, and a read circuit also coupled to the capacitor. The capacitor/transistor is one-time programmable as an anti-fuse by application of a program voltage across the oxide layer via the write circuit to cause direct gate tunneling current to rupture the oxide layer to form a conductive path having resistance of approximately hundreds of ohms or less.

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